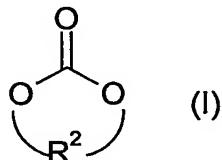


## CLAIMS

1. Process of forming an organic compound, wherein
  - (a) a component (A) containing at least one cyclic carbonate group having the general formula (I):



wherein:

$R^2$  represents a bivalent alkylene radical:  $-(CR^3R^4)_p-$  with  $p \geq 2$ ,

each  $R^3$  and each  $R^4$  is, independently, chosen from: hydrogen, aromatic radical, alkyl or alkenyl which contains from 0 to 8 ether bridges, and  $R^3$  and/or  $R^4$  may be substituted by one or more alkyl, alkenyl, aromatic radical, hydroxyl group(s), and/or cyclic carbonate group of formula (I),

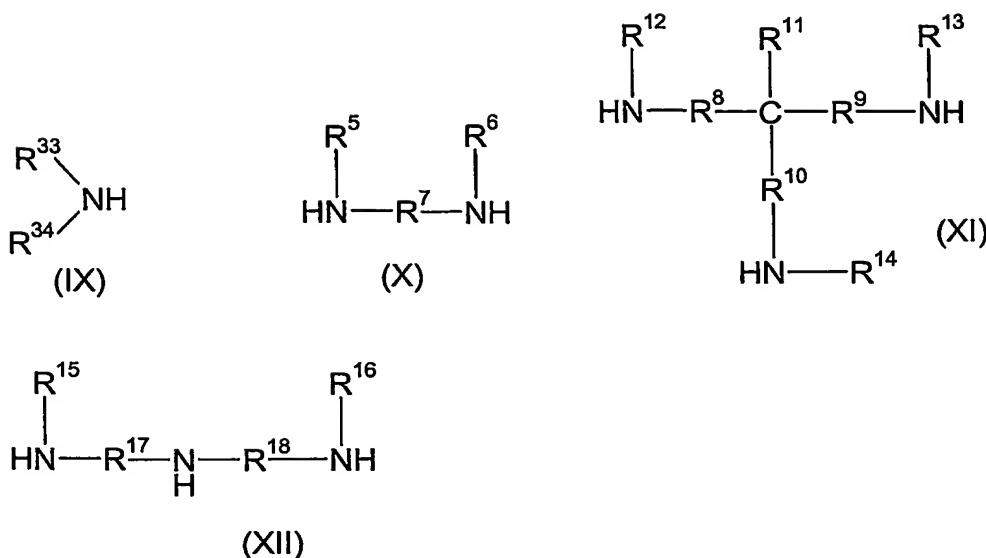
(b) is reacted with a component (B) containing at least one reactive nucleophilic function

X wherein each X is, independently, chosen from a primary amino or hydrazo, secondary amino or hydrazo, thiol and/or oxime,

(c) in presence of a catalyst comprising a lithium compound

(d) to form an organic compound (C) containing at least one unit of the general formula (II):  $-X-CO-O-$ .

2. Process according to claim 1, wherein component (A) contains at least one 5-membered cyclic carbonate group ( $p=2$  in general formula (I)).
3. Process according to claim 1 or 2, wherein component (A) contains at least two carbonate cycles.
4. Process according to any preceding claim, wherein component (A) is chosen from propylene carbonate, ethylene carbonate, butylenecarbonate, glycerinecarbonate, allyloxymethylcarbonate and biscarbonates made starting from the diglycidylethers of bisphenol A or of polypropylene glycol.
5. Process according to any preceding claim, wherein component (B) contains at least one nucleophilic function X which is an amino group.
6. Process according to claim 5, wherein component (B) is an amine of formula (IX), (X), (XI) or (XII)



wherein

R<sup>33</sup> is an alkyl, optionally substituted by hydroxy, tertiary amine and/or aryl, and optionally containing from 1 to 20 ether bridges and/or from 1 to 3 tertiary amine bridges, R<sup>34</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup> and R<sup>16</sup> are, independently, chosen from the group of

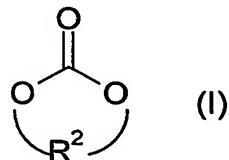
- hydrogen, and
- alkyl, optionally substituted by hydroxy, tertiary amine and/or aryl, and optionally containing from 1 to 8 ether bridges and/or from 1 to 3 tertiary amine bridges,
- with the proviso that, respectively, R<sup>33</sup> and R<sup>34</sup>, R<sup>5</sup> and R<sup>6</sup>, R<sup>12</sup> and/or R<sup>13</sup> and/or R<sup>14</sup>, R<sup>15</sup> and R<sup>16</sup> may be linked together in order to form a ring,

R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>17</sup> and R<sup>18</sup> are, independently, chosen from alkylene, alkenylene, arylene and aralkylene chains which may contain from 1 to 8 ether bridges and/or from 1 to 3 tertiary amine bridges,

R<sup>11</sup> is hydrogen or alkyl.

7. Process according to claim 5 or 6, wherein component (B) contains at least two primary or secondary amino groups.
8. Process according to claim 6 or 7, wherein component (B) is an amine chosen amongst cyclohexylamine, N-methylbutylamine, N-methylbenzylamine, piperidine, piperazine, morpholine, benzylamine, diethylenetriamine, ethanolamine, diethanolamine and polyoxyalkylene amines and diamines..
9. Process according to any preceding claim, wherein the lithium compound is lithium oxide (Li<sub>2</sub>O), lithium hydroxide (LiOH), lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>), methoxylithium (LiOCH<sub>3</sub>), terbutoxylithium (LiOtBu), lithium citrate, lithium chloride (LiCl), Li-stearate (LiC<sub>18</sub>H<sub>35</sub>O<sub>2</sub>), LiClO<sub>4</sub>, Li<sub>2</sub>SO<sub>4</sub>, LiOAc, LiOOCPH and/or lithium bromide (LiBr).
10. Process according to any preceding claim, wherein the reaction temperature is comprised between 0 and 120°C, preferably 50 to 80°C.

11. Process according to any preceding claim, wherein the amount of component (A) and component (B) are such that the molar ratio of cyclic carbonate groups to nucleophilic groups X is from 0.5 to 2.
12. Process according to any preceding claim, wherein the catalyst concentration is comprised between 0.01 and 5% by weight of the reacting mixture.
13. Process according to claim 12, wherein the catalyst concentration is comprised between 0.1 and 2% by weight of the reacting mixture.
14. Process according to any preceding claim, wherein the reaction is made in a solvent chosen among: alcohol, ether, ester, dimethylformamide, and water.
15. Process according to any preceding claim, wherein component (A) containing at least one cyclic carbonate compound is prepared by reaction of the corresponding epoxide compound with carbon dioxide ( $\text{CO}_2$ ) in presence of a lithium compound as catalyst.
16. Use of a lithium compound to catalyze a ring opening reaction wherein :  
a component (A) containing at least one cyclic carbonate group having the general formula (I):



wherein:

R<sup>2</sup> represents a bivalent alkylene radical: -(CR<sup>3</sup>R<sup>4</sup>)<sub>p</sub>- with p ≥ 2, each R<sup>3</sup> and each R<sup>4</sup> is independently chosen from: hydrogen, aromatic radical, alkyl, alkenyl which contains from 0 to 8 ether bridges, and R<sup>3</sup> and/or R<sup>4</sup> may be substituted by one or more alkyl, alkenyl, aromatic radical, hydroxyl group(s), and/or cyclic carbonate group of formula (I), is reacted with a component (B) containing at least one reactive nucleophilic function X wherein each X is, independently, chosen from a primary amino or hydrazo, secondary amino or hydrazo, thiol, and/or oxime to form an organic compound (C) containing at least one unit of the general formula (II): -X-CO-O-.